REMARKS

§ 103 Rejections

Independent Claim Rejections

Claims 1, 4-7, 9, 13-14, 21-22, 24, 26-30, 34-36 are rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 3,556,637 to Palmquist et al. (hereinafter "Palmquist") in view of U.S. Patent No. 5,187,220 to Richart et al. (hereinafter "Richart"). Specifically, the Examiner acknowledged that Palmquist does not describe "in a continuous process by means of at least one rotating mixing member," as is recited in independent claim 1 (Office Action, page 4). Further, the Examiner admits that Palmquist does not describe the "at least one rotating mixing member being a disc," as is recited in claims 9, 22, and 26.

However, the Examiner asserts that it "would have been obvious to one of ordinary skill in the art at the time of the invention to use a continuous process for coating particles including the use of a rotating member further being a disc because . . . a continuous process is more efficient per se in engineering generally" (Office Action, page 4). Applicant respectfully disagrees. The Examiner also asserts that Richart "discloses a continuous processes for coating particles including use of a rotating member further being a disc" (Office Action, page 4).

Dependent Claim Rejections

Claims 10, 12, and 32 are rejected under 35 USC § 103(a) as being unpatentable over Palmquist in view of Richart and further in view of the Ajax LynFlow Continuous Mixer Reference (hereinafter "LynFlow"). Specifically, the Examiner admits that neither Palmquist nor Richart describe the mixing member being an extruder screw or at least two co-rotating or counter-rotating mixing members, as is recited in claim 32. However, the Examiner asserts that LynFlow describes these claim elements and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references "because . . . LynFlow . . . teaches advantageous [sic] per se" (Office Action, page 5).

Claim 11 is rejected under 35 USC § 103(a) as being unpatentable over Palmquist in view of Richart and further in view of U.S. Patent No. 2,937,815 to Eirich et al. (hereinafter "Eirich"). Specifically, the Examiner admits that neither Palmquist nor Richart describe the mixing member being a grinding plate, as is recited in the present claims. However, the

Examiner asserts that Eirich describes this claim element and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references "because Eirich . . . teaches advantages of a grinding plate" (Office Action, page 6).

Claims 15-17 are rejected under 35 USC § 103(a) as being unpatentable over Palmquist in view of Richart and further in view of U.S. Patent No. 4,758,469 to Lange (hereinafter "Lange"). Specifically, the Examiner admits that neither Palmquist nor Richart describe the optical elements as microcrystalline beads as glass-ceramic beads, or as non-vitreous beads, as is recited in the present claims. However, the Examiner asserts that Lange describes these claim elements and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references "because Lange teaches durability" (Office Action, page 6).

Claims 18-20 are rejected under 35 USC § 103(a) as being unpatentable over Palmquist in view of Richart and further in view of U.S. Patent No. 6,153,671 to Schleifstein (hereinafter "Schleifstein"). Specifically, the Examiner admits that neither Palmquist nor Richart describe an adhesion promoting agent or a flotation agent that is fluorochemical, as is recited in the present claims. However, the Examiner asserts that Schleifstein describes these claim elements and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references "because Schleifstein teaches advantages for promoting characteristics of floatation and adhesion" (Office Action, page 7).

Arguments

Applicant respectfully disagrees with all of the Examiner's rejections.

Amended independent claim 1 of the present application recites "mechanically mixing the coated particles with the optical elements in a continuous process by means of at least one rotating mixing member." Amended independent claim 22 of the present application recites "mechanically mixing the core particles in a continuous process with optical elements by means of a device comprising at least one rotating mixing member selected from the group consisting of a disc, an extruder screw, co-rotating blades, counter-rotating blades, and a grinding plate." Amended independent claim 26 of the present application recites "mechanically mixing the coated particles in a continuous process with second particles by means of a device comprising

at least one rotating mixing member selected from the group consisting of a disc, an extruder screw, co-rotating blades, counter-rotating blades, and a grinding plate." Amended independent claim 30 of the present application recites "mechanically mixing the coated particles in a continuous process with second particles by means of a device comprising at least one rotating mixing member selected from the group consisting of a disc, an extruder screw, co-rotating blades, counter-rotating blades, and a grinding plate."

First, as the Examiner admits, none of the cited references, alone or in combination, teach, describe, or suggest "a continuous process," as is recited in all of the amended independent claims. Page 8, line 3 of the present application states that "[a]s used herein continuous process refers to a non-batch process" (page 8, lines 20-21). However, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to formulate a continuous process. (Office Action, page 4). Applicant disagrees with the Examiner's cursory conclusion and asserts that the Examiner has failed to make a prima facie case of obviousness.

The Examiner has not cited a single reference describing a continuous process for making retroreflective elements (Richart relates to a completely different and non-analogous field, namely coating powders containing metallic or non-metallic flakes). Instead, the Examiner relies on the general theory that continuous processes are always preferred to batch processes in industry because they are more efficient or on the theory that continuous processes in other, non-analogous arts would make the formulation of a continuous process obvious to the present inventors. (Office Action, page 4). What the Examiner fails to appreciate is that inventing a continuous process of making retroreflective elements while maintaining the high performance of the retroreflective elements is no small feat (see, for example, page 2, lines 15-18 of the present application). This fact is evidenced by the fact that not a single reference that the Examiner can locate or cite has successfully formulated a continuous process for making retroreflective elements in the 40+ years since Palmquist issued. If the need in the industry for a continuous process was obvious, then clearly someone would have invented such a process in the last 40+ years. But no one did - until the inventors of the present application. As such, the present application addresses a long-felt, unsatisfied need in the industry.

Further support for this argument can be found in the present application. For example, as is stated on page 2, lines 15-18 of the present application, existing "retroreflective elements provide suitable retroreflective properties in combination with suitable durability, [but] industry would find advantage in alternative methods of making retroreflective elements, particularly methods amenable to the manufacture of retroreflective elements at a reduced cost." The inventors of the present application discovered just that – a novel method of manufacturing retroreflective elements with high performance. Additionally, the present application states that "[t]he methods described herein result in retroreflective elements having at least comparable and often better retroreflective properties in comparison to retroreflective elements having a ceramic core, yet can be manufactured at a substantially lower cost due to the invention described herein" (page 16, lines 13-16). Lastly, the methods of the present application have significantly improved rates of output (as is described, for example, on page 12, lines 6-10 of the application).

Second, as the Examiner admits, none of the cited references, alone or in combination, teach, describe, or suggest "mechanical mixing . . . by means of at least one rotating mixing member," as is recited in all of the amended independent claims. "Applicant has found mechanical mixing advantageous in preventing the undesirable formation of agglomerations, *i.e.* the bonding of more than one core particle to each other" (page 8, lines 20-21 of the present application). As such, mechanical mixing (when manufacturing high performance retroreflective elements) is more than merely a process choice – it conveys advantages to the final product. The Examiner has not cited a single reference describing the use of mechanical mixing using at least one rotating member for making retroreflective elements. Instead, the Examiner relies on the general theory that mechanical mixing is known and used in other, non-analogous arts. Applicant disagrees with the Examiner's application of this cursory conclusion and asserts that the Examiner has failed to make a prima facie case of obviousness.

For at least these reasons, applicant believes that amended independent claims 1, 22, 26, and 30, and their dependent claims, are allowable.

Respectfully submitted,

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